TOSHIBA

SERVICE MANUAL

DLP PROJECTOR

TDP-FF1A
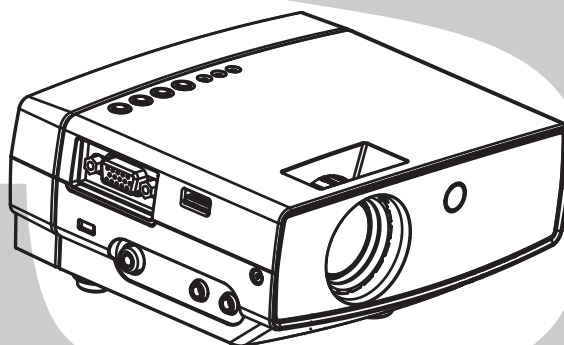
Preface

This manual is applied to FF1 0.55" DMD SVGA (S8) digital projection system. It's the mode of single Panel, Osram LED module and 800(H) x 600(V) resolution. The manual gives you a brief description of basic technical information to help in service and maintaining the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Send the product back to the distributor for repairing and do not attempt to do anything that is complex or is not mentioned in the troubleshooting.

NOTICE :

The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in further edition.

Table of Contents

Introduction

1-1 Highlight

No	Item	Description
1	DMD	One panel 0.55" DMD SVGA projection system with 15 ANSI lumens
2	Lamp	Osram LE ATB A2A LED module
3	Weight	Light weight Approx. 565 Grams, (1.25 lbs)
4	Resolution	True 800 x 600 resolution, 16.7M True colors
5	Video capability	Build-in full screen NTSC/PAL/SECAM/HDTV (480 i/p, 576i/p, 720p, 1080i) video capabilities with a Composite terminal
6	Expandiability	UXGA/SXGA/XGA/SVGA/VGA/MAC compatibility with one D-sub 15-pin input terminal
7	Language	On-screen menu with 8 languages
8	Auto function	Auto image re-sizing to 800 x 600 full screen
		Auto detection of computer signal input
		Auto Image synchronization (Auto-tracking /frequency /position adjustment)

1-2 Mechanical Specifications

No	Item	Description
1	Dimensions (WxHxD)	140mm x 48mm (min. front view) x 102mm
2	Cooling System	One fan with low system acoustic noise level Maximum touch temperature follows the UL60950 regulation
3	Cabinet	Provides space for PCB boards, fan, optical engine, speaker and LED
4	Keystone correction	+/ -16 degree

1-3 Electrical Specifications

No	Item	Description
1	Power Supply	External adapter: 100--240V AC, 50/60 Hz input; 15V DC, 4A output. System power input: 15V DC
2	Power Consumption	< 18W, where USB power(5V, 0.5A) is used to drive an USB-HDD.
3	Terminals	One D-Sub 15-pin female connector for analog RGB / HDTV / compoment video One Phone Jack for audio input One Phone Jack for headphone out One RCA Jack for Composite Video Input USB connector for USB pendrive
4	Input signal spec.	Hsync Frequency: 15 ~ 100 kHz Vsync Frequency: 43 ~ 85 Hz Video Signal RGB (PC) -Analog RGB 0.7 Vp-p, 75 ohms, separate TTL H&V Sync -Analog RGB 1.0 Vp-p, 75 ohms, Sync on Green -Analog RGB 0.7 Vp-p, 75 ohms, composite TTL Sync Video -Composite video 1.0 Vp-p, 75 ohms -S-video Luminance 0.714 Vp-p, 75 ohms -Chrominance 0.286 Vp-p, 75 ohms

No	Item	Description
5	System Controller	TI DDP2000 component set, Micronas VPX3226 Video decoder ADI AD9883 compatible A/D converter Atmel AT76C120 Digital Image Processor
6	Video Compatibility	Standards : -NTSC: M (3.58MHz), 4.43 MHz -PAL: B, D, G, H, I, M, N -SECAM: B, D, G, K, K1, L -HDTV: 480i/p, 576i/p, 720p, 1080i
7	Wireless Remote Controller	One IR receiver in front
8	Audio	0ne 4-ohm 0.5W speaker
9	On-Screen Display Menu	8 languages selection: Japanese, English, French, German, Italian, Spanish, Simplified Chinese, Swedish.

1-4 Battery Specifications

No	Item	Description
1	Battery cell	Samsung 18650, 2200mAH, Li-Ion, Rechargable
2	Capacity	4400mAH, 7.4V, 4-cell, 2S2P
3	Battery life	~1.8 hours for operation at 18W.
4	Weight	250g
5	Dimentions (WxDxH)(mm)	140 x 21 x 57
6	Charging time	~3.5 hours, non-operating and operating
7	Charging method	CC-CV
8	Charging Current	2000mA (If thermal test OK, will increase to 2200mA)

1-5 Optical Specifications

No	Item	Description
1	Projection lens	F# 2.6, Fixed Lens.
2	Focus Range	40cm to 2.5m with full optical performance 30cm to 4m mechanical travel
3	Throw Ratio	1.8
4	Brightness	15 ANSI Lumens (Typical) / 12 ANSI Lumens (Minimum)
5	Contrast	1500:1 Typical / 1000:1 Minimum (Full on / full off)
6	Uniformity	75% Typical / 60% Minimum (Japan standard)
7	White color uniformity	In white screen, the color coordinate of any two poits of ANSI 13 p $\Delta x <= 0.02$, $\Delta y <= 0.02t$
8	Lens Offset	110% +/- 10%
9	TV distortion	<1.0% (at 100% offset condition)

1-6 Environmental

No	Item	Description
1	Temperature	Operating: 5 - 35°C Storage: -20- 60°C
2	Maximum Humidity	Operating: 5 - 35°C, 80% RH (Max.), non-condensing Storage: -20 - 60°C, 80%RH (Max.), non-condensing
3	Acoustic noise level	30+/-2 dB(A), typical, at 23 +/-2 degree C.
4	Lamp life	>10,000 Hours
5	Altitude	Operating 0~2,500 ft, for 5°C~35°C 2,500~5,000 ft, for 5°C~30°C 5,000~10,000 ft, for 5°C~25°C Storage 40,000 ft

1-7 Compatible Mode

Analog
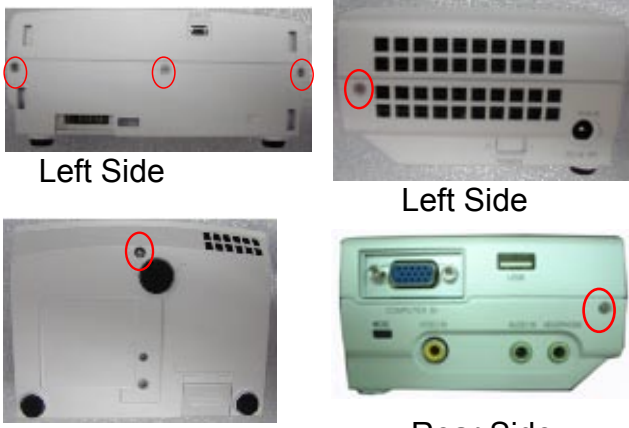
Compatibility	Resolution	V-Sync[Hz]	H-Sync[KHz]
VGA	640x350	70	31.5
	640x350	85	37.9
	640x400	85	37.9
	640x480	60	31.5
	640x480	72	37.9
	640x480	75	37.5
	640x480	85	43.3
	720x400	70	31.5
	720x400	85	37.9
SVGA	800x600	56	35.2
	800x600	60	37.9
	800x600	72	48.1
	800x600	75	46.9
	800x600	85	53.7
XGA	1024x768	60	48.4
	1024x768	70	56.5
	1024x768	75	60
	1024x768	85	68.7
SXGA	1152x864	70	63.8
	1152x864	75	67.5
	1152x864	85	77.1
	1280x1024	60	63.98
	1280x1024	75	79.98
SXGA+	1400x1050	60	63.98
UXGA *Note(1)	1600x1200	60	75
MAC LC 13"	640x480	66.66	34.98
MAC II 13"	640x480	66.68	35
MAC 16"	832x624	74.55	49.725
MAC 19"	1024x768	75	60.24
MAC	1152x870	75.06	68.68
MAC G4	640x480	60	31.35
i Mac DV	1024x768	75	60
i Mac DV	1152x870	75	68.49
i Mac DV	1280x960	75	75
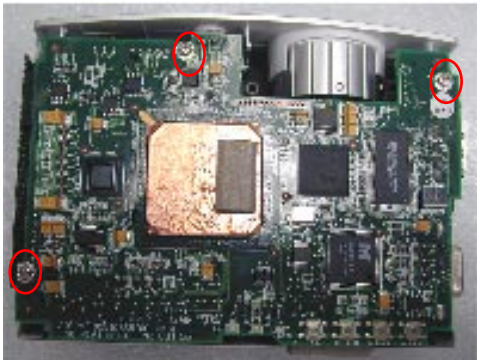
Disassembly Process
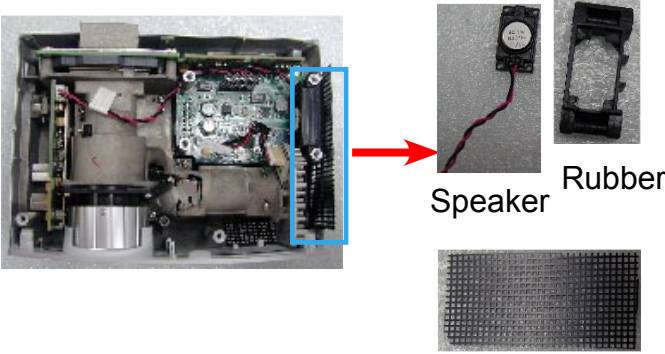
2-1 Equipment Needed

Item	Photo	Item	Photo
Screw Bit (+) :107		Hex Sleeves 5mm	
Hex Sleeves 6mm		Tweezers	
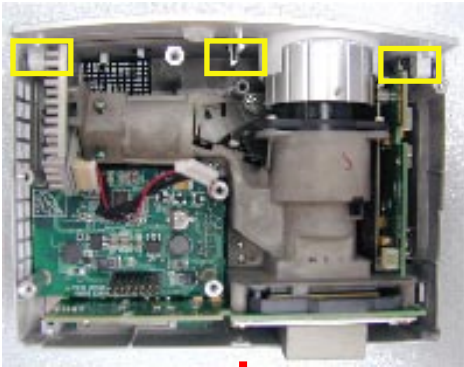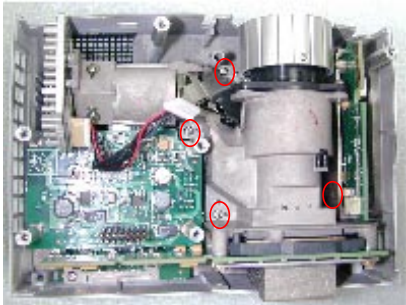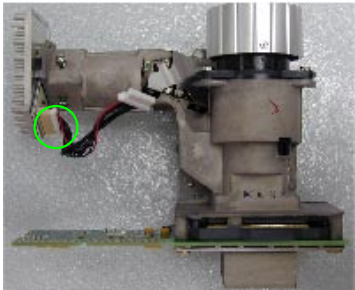
2-2 Disassemble Top Cover, Main Board, Fan Module, LED Board and Speaker
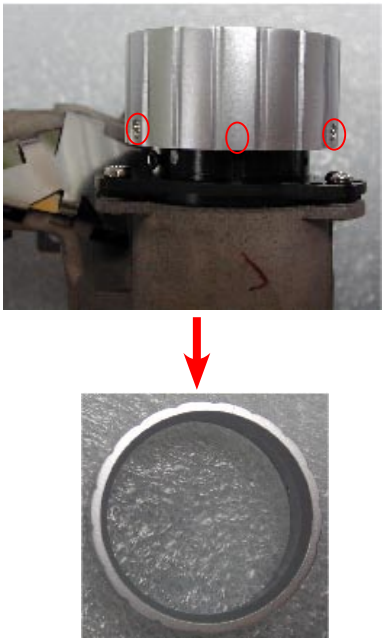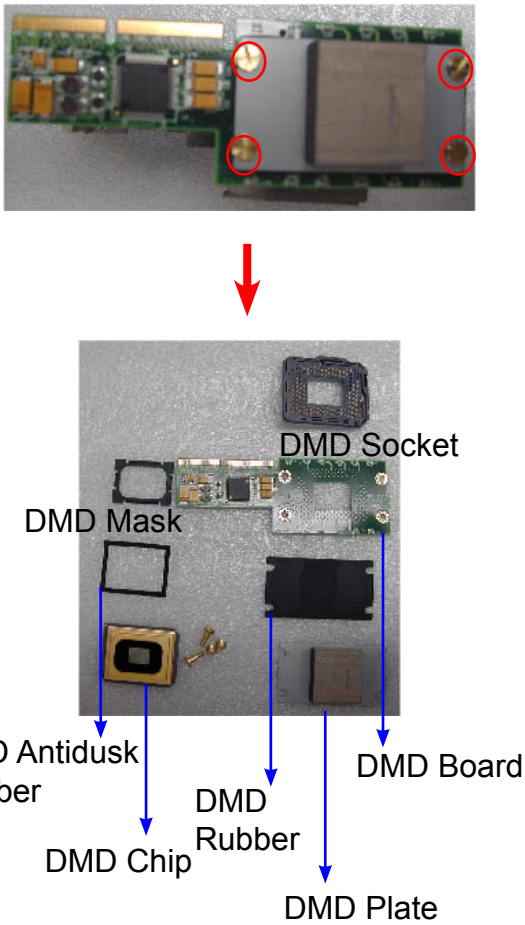
No	Procedure	Photo
1	Unscrew 2 screws to remove VGA Cover.	
2	Unscrew 6 screws to remove Top Cover. Note: Please remove Top Cover rightwards.	Left Side Left Side Bottom Side Rear Side Move rightwards Top Cover

FF1

No	Procedure	Photo
3	Unscrew 3 screws and un-plug 1 connector to remove Main Board.	 Main Board Fan Module

No	Procedure	Photo
4	Unscrew 3 screws, 1 hex screw and unplug 1 connector to remove LED Board	Hex screw LED Board
5	Remove Speaker, Rubber and Mesh directly	Speaker · Rubber · Mesh
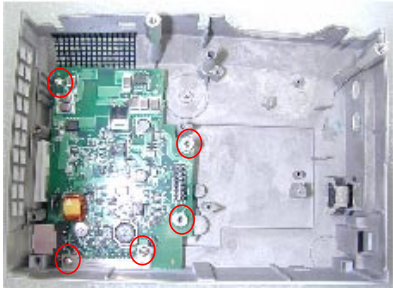
2-3 Disassemble Front Cover, IR Lens, Engine Module, Focus Ring and DMD Module
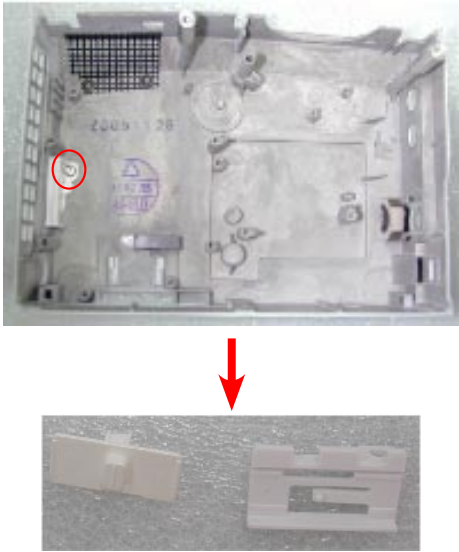
No	Procedure	Photo
1	Loosen 3 tenons to remove Front Cover and IR Lens.	Front Cover IR Lens
2	Unscrew 4 screws to remove Engine Module and unplug 1 connector from Engine Module.	Engine Module Connector

No	Procedure	Photo	
3	Unscrew 3 screws to remove Focus Ring	 Focus Ring	FF1
4	Unscrew 4 hex screws to remove DMD Board, DMD Chip and so on. Note: please re-assemble the parts in the diagonal way.	 DMD Socket DMD Mask DMD Antidusk Rubber DMD Chip DMD Rubber DMD Board DMD Plate	

2-4 Disassemble I/O Board, Power Board and Battery Board

No	Procedure	Photo
1	Unscrew 2 screws to remove I/O Board	I/O Board I/O Board Bracket
2	Unscrew 4 hex screws to remove Power Board	Power Board

No	Procedure	Photo
3	1. Unscrew 3 screws and 2 hex screws 2. Use a tweezers to take off Battery Connector Cover while lifting Battery Board. 3. Remove Battery Board in the upper right direction.	Notice: please set "Power Switch" button to "OFF" status before disassembling Battery Board. 1 2 Battery Connector Cover 3 Battery Board

No	Procedure	Photo
4	Unscrew 1 screw to remove Micro Switch and Micro Switch Frame	 Micro Switch Micro Switch Frame
5	Loosen Elevator Foot Rubber	 Elevator Foot Rubber

Troubleshooting

3-1 Equipment Needed

- PC or Pattern Generator
- DVD Player (Video, S-Video, Audio)
- Quantum Data 802B or CHROMA 2327

3-2 Main Procedure

No	Symptom	Procedur
1	**No Power**	- Check Battery or Power source (DC 15V) - Ensure all connectors are securely connected and aren't broken - Check Battery Board - Check Power Board - Check Main Board
2	**Auto Shut Down**	Please refer to page 3-3 note LED/Icon Message.
3	**No Image**	- Ensure the Signal Cable and Source work (If you connect multiple sources at the same time, use the "Input" button on the control panel to swtich) - Ensure all connectors are securely connected and aren't broken - Check Main Board (VGA/USB), or IO Board (Video) - Check LED Board - Check DMD Board - Check DMD Chip - Check Engine Module
4	**No Light On**	- Ensure all connectors are securely connected and aren't broken - Check Battery Board - Check Power Board - Check Main Board - Check LED Board - Check Engine Module

No	Symptom	Procedure
5	**Mechanical Noise**	- Check Fan Module
6	**Line Bar / Line Defect**	- Check if the DMD Chip and the DMD Board are assembled properly - Check DMD Board - Check DMD Chip - Check Main Board
7	**Image Flicker**	- Do "Reset" of the OSD Menu - Ensure the Signal Cable and Source work - Check Battery Board - Check Power Board - Check IO Board (Video) - Check DMD Board - Check Main Board
8	**Color Abnormal**	- Do "Reset" of the OSD Menu - Check Battery Board - Check Power Board - Check LED Board - Check Main Board - Check Engine (LED light source)
9	**Poor Uniformity / Shadow**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Check Engine Module
10	**Dead Pixel / Dust (Out of spec.)**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Clean DMD Chip and Engine Module - Check DMD Chip - Check Engine Module
11	**Garbage Image**	- Ensure the Signal Cable and Source work - Check Main Board - Check DMD Board

12	**Remote Controll or Control Panel Failed**	- Remote Control
		  a. Check Battery
		  b. Check Remote Control
		  c. Main Board IR Receiver
		- Control Panel
		  a. Check Keypad
		  b. Check Main Board

No	Symptom	Procedure
13	**Function Abnormal**	- Do "Reset" of the OSD Menu - Check Main Board - Check DMD Board

Note: LED/Icon Message

Auto Shutdown symptom	Icon	Condition	LED message			Check Procedure
			TEMP (Red)	BATT. (Red)	POWER (Green)	
Battery empty		Display message and shout down after 5 sec.		Flash 2Hz	ON	Check Battery
Battery unstable		Display Icon and shout down after 5 sec.		Flash 5Hz	ON	Check Battery
Battery hot in discharge(Over 60ºC)		Display Icon and shout down after 5 sec.	Flash 2Hz	Flash 2Hz	ON	Wait battery for cooling down
Environment over 40ºC		Display message and shout down after 5 sec.	ON		ON	Move the unit to cooler environment.
Fan can not work		Display message and shout down after 5 sec.		ON		1. Check fan 2. Check IO Board 3. Check MB
LED over 65ºC		Display message and shout down after 5 sec.	ON		ON	Wait for LED to cool down.
System error Device error etc.		Display message and shout down after 5 sec.	Flash 5Hz	Flash 5Hz	ON	Other system error and device errer.

Function Test & Alignment Procedure

4-1 Test Equipment Needed

- IBM PC with SXGA resolution (Color Video Signal & Pattern Generator)
- DVD player with Multi-system (NTSC/PAL/SECAM), equipped "Component", "S-Video" and "Composite"
- HDTV Tuner or Source (480P)
- Minolta CL-100
- Quantum Data 802B or CHROMA2327
- After changing parts, check the information below.

Charge Parts/ Update	Version Update	A D C Calibration	V i d e o Calibration	Factory Reset	EDID
M/B	v	v	v	v	v
FW	v			v	

4-2 Service Mode
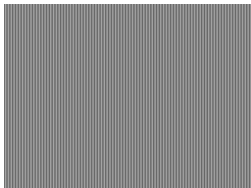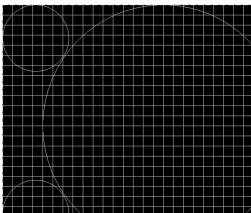
No	Item	Step
1	**Service Mode**	1. Turn on the projector. 2. Press "Menu and Enter" → "Left and Enter" → "Menu and Right" → "Menu and Enter" sequentially to get into Service Mode.
2	**Reset**	After final QC step, we have to erase all saved change again and restore the factory defaults. The following actions will allow you to erase all end-users' settings and restore the original setting: 1. Please enter OSD Menu. 2. Choose "Reset All" and press "Enter". then choose "Yes" to reset all data.
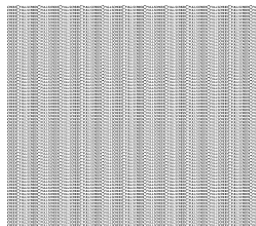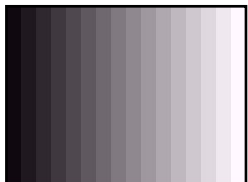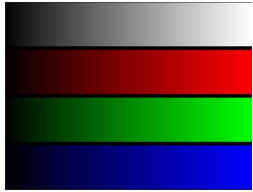
4-3 Test Condition
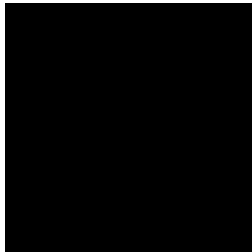
- Circumstance Brightness : Dark room less than 2.5 lux.
- Inspection Distance : 0.4~2.5 for functional inspection
- Screen Size : 60 inches diagonal (wide)
- After repairing each unit, it should be burn-in (Refer to the table below).
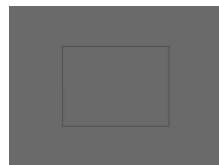
Symptom	Burn-in Time
Normal Repair	2 Hours
NFF	4 Hours
Auto Shutdown	6 Hours
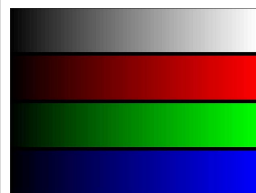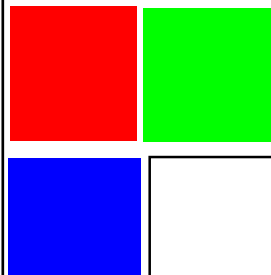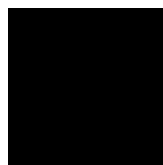
4-4 Inspection Procedure
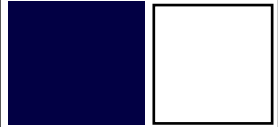
No	Step	Specification	Procedure	Photo
1	**Frequency and Tracking**	Eliminate visual wavy noise by Rsync, Frequency or Tracking selection.	- Test Signal : 800x600@60Hz - Test Pattern : Line Moire Pattern - check and see if image sharpness and focus are well-performed. - If not, re-adjust by the following steps: (1) Select "Frequency" function to adjust the total pixel number of pixel clock in one line period. (2) Then, select "Tracking" function and use right or left arrow key to adjust the vgalue to minimize video flicker.	
2	**Boundary**	Horz. And Vert. position of video should be adjustable to be the screen frame.	- Test Signal : 800x600@60Hz - Test Pattern : Boundary Frame - Auto set or Frequency / Tracking / H. Position / V. Position to the inner of the screen.	

No	Step	Specification	Procedure	Photo
3	**Focus**	The text in the corner should be clear after adjust the focus ring.	- Test Signal : 800x600@60Hz - Test Pattern : Text Pattern - Adjust the center clearly; meanwhile, one slightly vague corner in the image is allowed.	
4	**HDTV**	No discolor	- Test Signal : 480P - Test Pattern : Color Bar - Equipment: Quantum Data 802B or CHROMA2327 *Please refer to page 4-1 to enter Service Mode. Use 480P signal, color bar pattern to do video calibration; If the test result was in discoloration or flickering, please return the unit back to the repair center.	
5	**Color Perfor-mance**		- Test Signal : 800x600@60Hz - Test Pattern : 64 RGBW Scale Pattern & Gray 16 Pattern - Please check and ensure if each color is normal and distinguishable. - If not, please adjust color setting of the Service Mode. - Check R/G/B color level is par-allel, If yes, adjust gray level. 1. Gain R adjust the bright level of red	

No	Step	Specifica-tion	Procedure	Photo
5	**Color Perfor-mance**		2. Gain G adjust the bright color level of green 3. Gain R adjust the bright color level of blue 4. Gain R adjust the dark color level of red 5. Gain R adjust the dark color level of green 6. Gain R adjust the dark color level of blue	

6	**Screen Unifor-mity**	Should be compli-ant with 60%.(Mini-mum)	- Test Signal :
			  800x600@60Hz
			- Test Pattern : Full White Pattern & Full Black
			  Pattern
			- Please check and ensure
			  the unit is under the spec.
			- Please check and see if
			  it's in normal conidtion.
			- If not, please return the
			  unit to repair area.
			  *Please check and see if there are dead pixels on DMD Chip.
			- The total number and
			  distance of dead pixels
			  should be compliant with
			  the spec.	

No	Step	Specification	Procedure	Photo
7	**Light Leak**	The unit can't accept the leakage is brighter than Gray 10 pattern	- Test Signal : 800x600@60Hz - Test Pattern : Gray 10 Pattern - Please check and see if the light leaks ***Note*** - The unit cannot accept the leakage is brighter than Gray 10 Pattern Note: Light leak on reflective edge, eyecatcher, bond wires and exposed metal.	
8	**Cali-bration**	Calibra-tion Pattern should be in full screen mode	- Once Main Board is changed, Video Calibration & ADC Cali-bration should be done as well. - Video Calibration - Test Signal : HDTV - 480P - Test Pattern : TV Bar - **ADC Calibration (PC Calibration)** - Test Signal : 800x600@60Hz - Test Pattern : Calibration Pat-tern	
8	**Cali-bration**	Calibra-tion Pattern should be in full screen mode	Note: 1. Calibration Pattern should be in Full Screen Mode. 2. Please refer to ***4-6. Guide to Entering Service Mode and Facotry Reset*** for entering Service Mode. 3. Choose and access Video Calibration & ADC Calibration for correction in Service Mode. Choose "Exit" to leave the Service Mode after all.	

No	Step	Specification	Procedure	Photo
9	**Contrast/ Brightness**	Gray level should be distinguishable and without color abnormal.	- Test Pattern : 64 RGBW scale	
10	**R, G, B and White Color Performance**	Each R, G, B color should be normal without color abnormal issue.	- Test Pattern : R, G, B and White Color	

11	**Dead Pixel (Bright pixel)**	Cannot accept any bright pixel	Bright Pixel:
			  Test Pattern: Full Black Pattern
			  - Please check and ensure that the unit cannot accept any bright pixel.
			  - If not, please return the unit to repair area.	

	Dead Pixel (Dark pixel)	The numbers of dead pixel should be smaller or amount to 6 pixel.	Dark Pixel:
			  Test Pattern: Full White Pattern
			  - Please check and ensure that the pixel number should be smaller or amount to 5 pixels.
			  - If not, please return the unit to repair area.	

No	Step	Specification	Procedure	Photo
12	**Blemish**	The bright blemish cannot be accepted if the problem appear with Gary 30 pattern	- Test Pattern : Full Black / Gray 30	
13	**Blemish (Dark)**	The dark blemish cannot be accepted if the problem appear with Blue 60 pattern.	- Test Pattern : Full white / Blue 60	

Firmware Upgrade Procedure
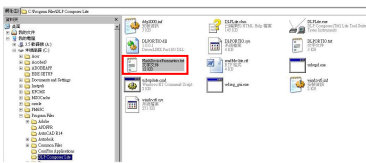
5-1   Equipment Needed

Software :

    - DLP Composer (V3.6 version or up)
    - FF1 Firmware
    - Flash Device parameters.txt (copy to the route where DLP composer lite lies)
    Note: please do keep original Flash Device paramters.txt file for other modles)

Hardware :

    - Power Cord
    - Mini USB - USB(A) (42.86102.001)
    - PC or Laptop
    - FF1 Projector

Item	Photo
Flash Device parameters.txt	
PC or Laptop	
Power Cord	
USB cable	
FF1 projector	
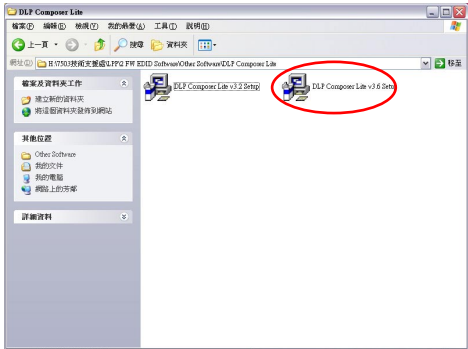
5-2   Hardware Setup Procedure
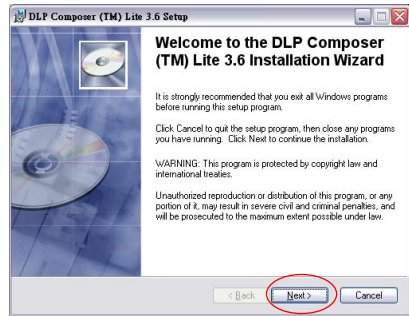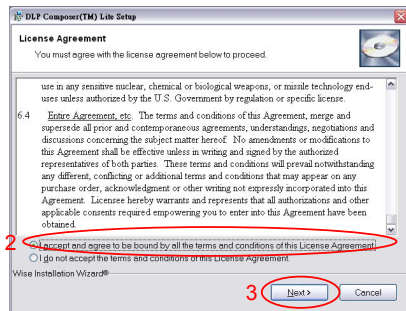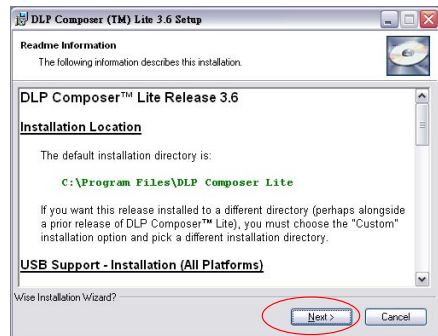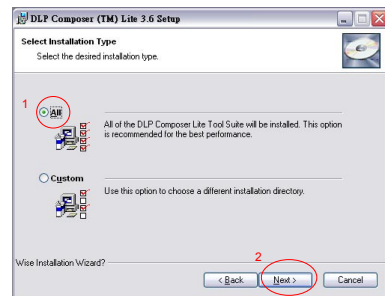
1. Connect USB Cable of PC to USB port of FF1 Projector.
2. Connect Power Cord to FF1 unit.
3. Hold Menu and right buttons and turn on "Switch" button.
4. When Power LED lights green and Temp LED lights red, release two buttons.
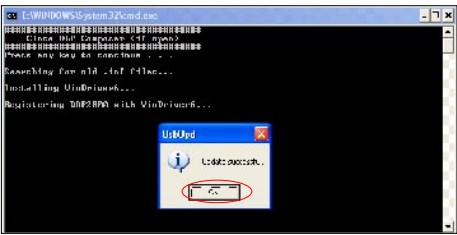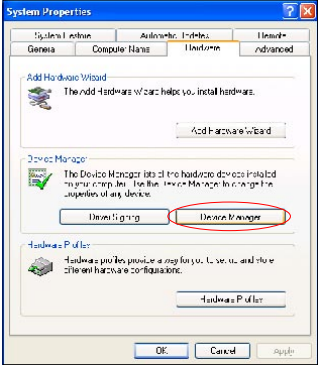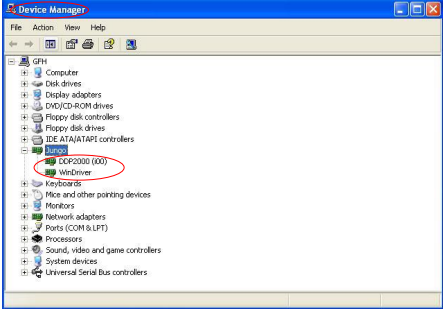
No	Step	Procedure	Photo
1	Connect All Ports	1. Connect USB Cable of PC to Mini USB port of FF1 Projector. 2. Connect Power Cord to FF1 unit. 3. Hold menu and right buttons and turn on "Switch" button. 4. When Power LED lights green and Temp LED lights red, release two buttons.	 Mini USB Port

5-3 Firmware Software Installation Procedure
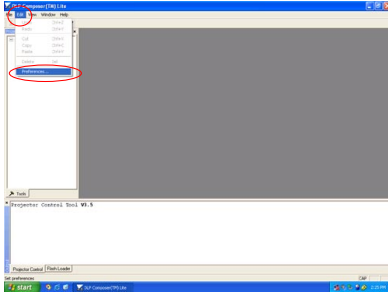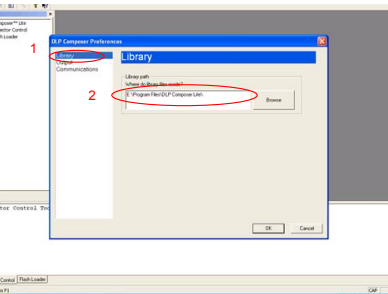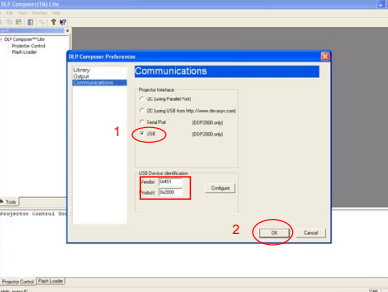
5-3.1 DLP Composer Lite Setup Procedure
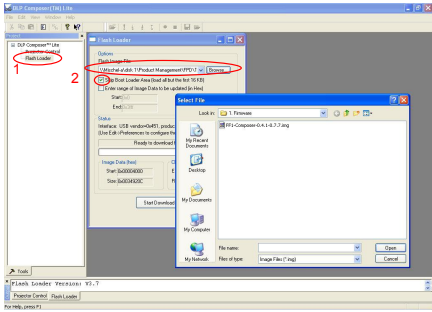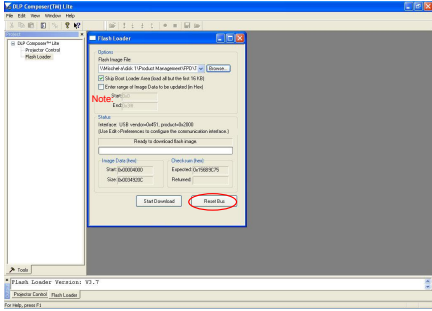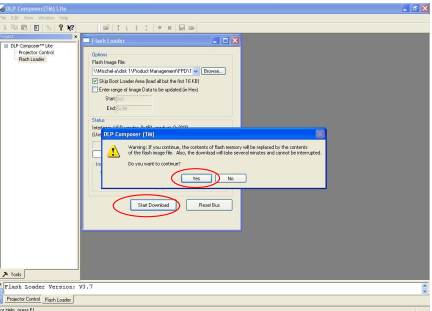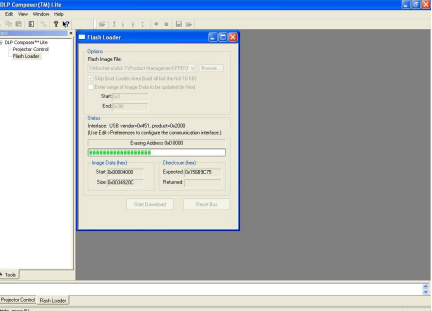
No	Step	Procedure	Photo
1	Choose the program	Choose "DLP Composer Lite v3.6 Setup" program.	
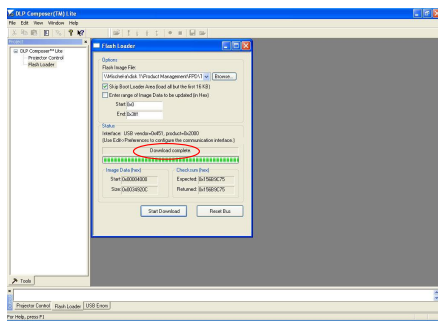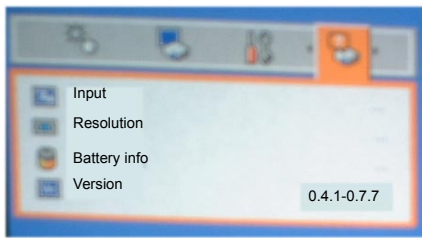
No	Step	Procedure	Photo
2	Next	Click "Next" button.	
3	Next	Reading the "License Agreement" rules, choose "I accept and agree to be bound by all the terms and conditions of this License Agreement" icon, then click "Next" button.	
4	Next	Press "Next" Button	
5	Next	Click "Next" button.	
6	Next	Choose "All" icon, then click "Next" button.	

No	Step	Procedure	Photo
7	Next	Click "Next" button.	
8	Next	The program is executing "Initializing" status.	

5-3.2 USB Driver Upgrade Procedure

No	Step	Procedure	Photo
1	Execute the program	1. Hold "Menu" and "Right" key and turn on power switch till "TEMP" LED is lit in red. 2. Execute the C:\Program files\DLP Composer\usbupdata.cmd. Note : The "DLP Composer" program must be closed first.	
2	Next	Type any key to continue. Then wait about a minute.	

No	Step	Procedure	Photo
3	Next	Click "OK". The USB driver updated successfully.	
4	Next	1. Right click "My Computer" on the desktop. Select "Properties" on the popup menu to launch the "System Properties" window. 2. Choose "Hardware" and then click "Device Manager".	 Device Manager
5	Finished	Click "Jungo" to assure "DP2000" and "WinDriver" are properly installed. If not, repeat Step 1 ~ 6.	

5-4　　　Firmware Upgrade Procedure

No	Step	Procedure	Photo
1	Execute the program	1. Hold "Menu" and "Right" key and then turn on Power Switch till "TEMP" LED is lit in red to enter Download Mode. 2. Execute the "DLP ComposerTM" file.	
2	Next	Click "Edit" and "Preferences".	
3	Next	Click "Library" The library path located to the default installation directory is C:\Program Files\DLP Composer. If not then press "Browse" to select the right path.	
4	Next	Select "Edit\Preferences\Communications", choose "USB" and then click "OK".	 Note: (Please make sure the setting is as follows) Start: 0x451 End:0x2000

No	Step	Procedure	Photo
5	Next	Choose "Flash Loader" and click "Browse" to search the FF1-com-poser-0.4.1-0.7.7.img" file. Select the item "Skip Boot Loader Area (load all but the first 16KB)".	
6	Next	Click "Reset Bus" to erase the flash memory. Note: (Please make sure the setting is as follows) Start: 0x0 End:0x3fff	
7	Next	1. If the firmware is ready, then click "Start Download" to process the firmware upgrade. 2. Click "Yes" to erase the flash memory. Note: If Firmware upgrade fails, please make sure original parameters.txt is copied back to the route where DLP composer lite lies.	
8	Next	As the right image shows	

No	Step	Procedure	Photo
9	Next	After file was download. Please to restart the unit and enter the OSD Menu to check the F/W version of FF1.	
10	Finished	Enter the OSD Menu to check the F/W version of FF1.	

EDID Key-in Procedure

Extended Display Identification Data is a VESA standard data format that contains basic information about a display device and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the FF1

The information is stored in the display and is used to communicate with the system through a Display Data Channel (DDC), which sites between the display device and the PC graphics adapter. The system uses this information for configuration purposes, so the FF1 and system can work together.
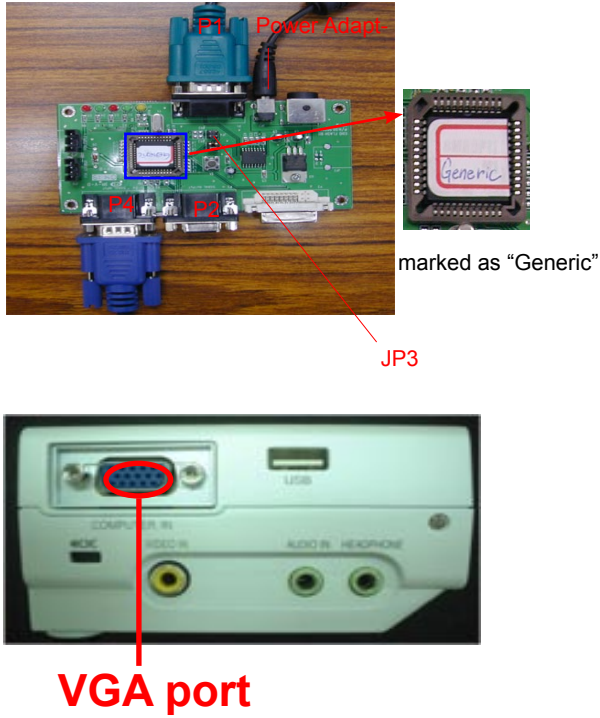
Note: If a display device has digital input ports, like DVI or HDMI, but without EDID in its main board, the display device will show no image while the input source is digital signal.

6-1   Equipment Needed
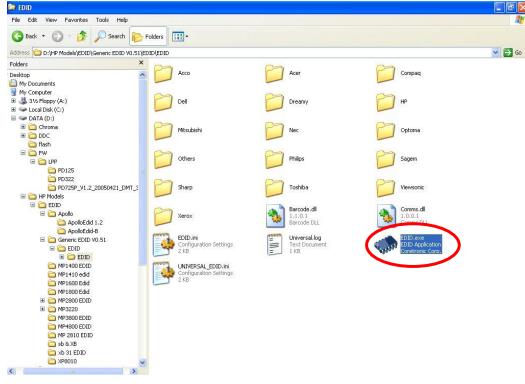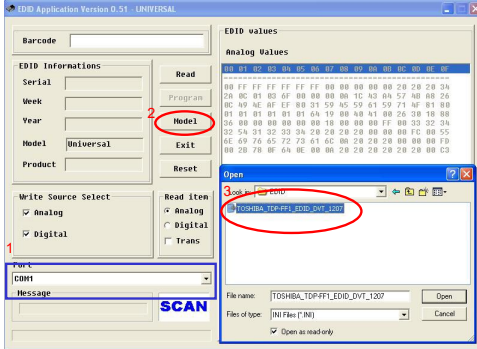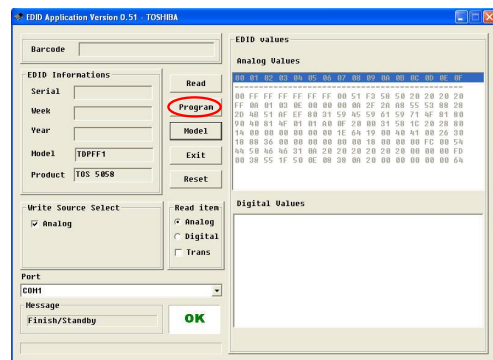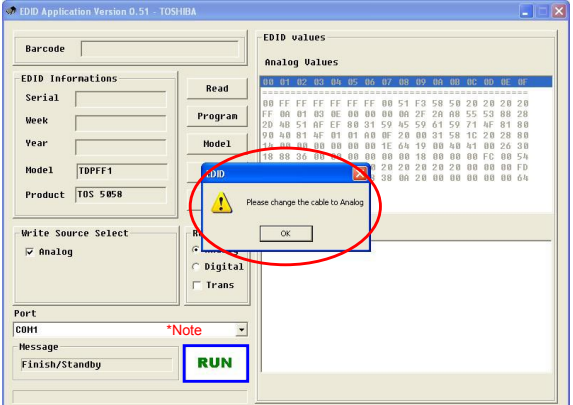
- PC or Laptop
- EDID Fixture
- Power Adapter & Power Cord
- RS-232 Cable (Female to Male)
- VGA Cable
- Power Cord
- DDC Driver
- FF1 Unit Power Adaptor & Power Cord
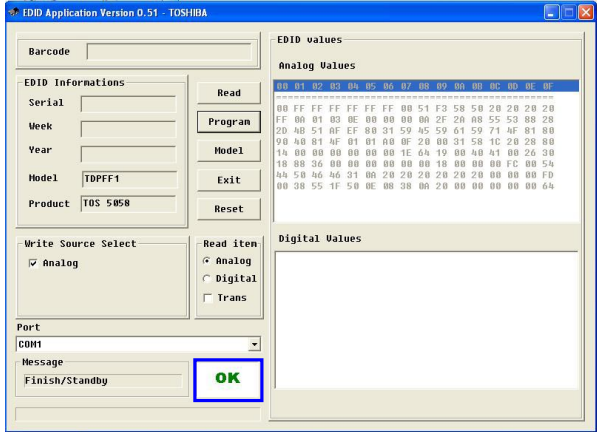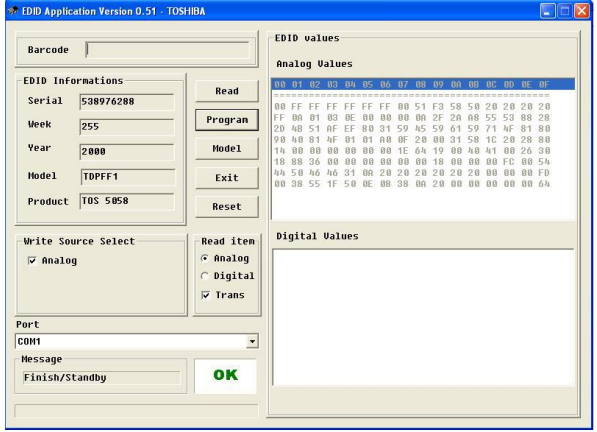
Item	Photo	Item	Photo
EDID Fixture		PC or Laptop	
Power Adapter and Power Cord for Fixture		Power Adapter and Power Cord for Projector	
VGA Cable		Power Cord	
FF1 projector		RS-232 Cable (F to M)	

6-2 Setup Procedure

No	Step	Procedure	Photo	
1	Connect all ports	1. Connect Power Adapter with the fixture. 2. Connect P1 of the fixture with COM1 of PC/Laptop by RS232 cable. 3. Connect P2 or P4 of the fixture with VGA port of FF1 by VGA cable. 4. Plug Power Adapter to the fixture and connect the FF1 Power Cord. Notice : Confirm JP3 in the fixture is "Close" status.	marked as "Generic" JP3 **VGA port**	

6-3 DDC Key-In Procedure

No	Step	Procedure	Photo
1	Execute EDID Program.	Execute "EDID" program.	
2	Next	Check the Com port is "COM1", then click the "Model" item and choose the source file "Toshiba_TDP_FF1_ EDID_DVT_1207.ini" and then open it	
3	Next	Click "Program" button.	
4	Next	"Please change the cable to VGA" message is shown on the screen, then click "OK" button. *Note : "RUN" message will appear on the screen.	

No	Step	Procedure	Photo
5	Next	When the FF1 EDID program is finish, the "OK" message will appear on the screen.	
6	Finished	Make sure to check "Analog" and "Trans" in Read item and then press "Read" button. EDID Informations will be showed serial: 538976288. Week:255, Year:2000. Then click "Reset" button to do the next unit or "Exit" button to close the EDID program.	

Appendix A

Exploded Overview

I.   FF1 Unit
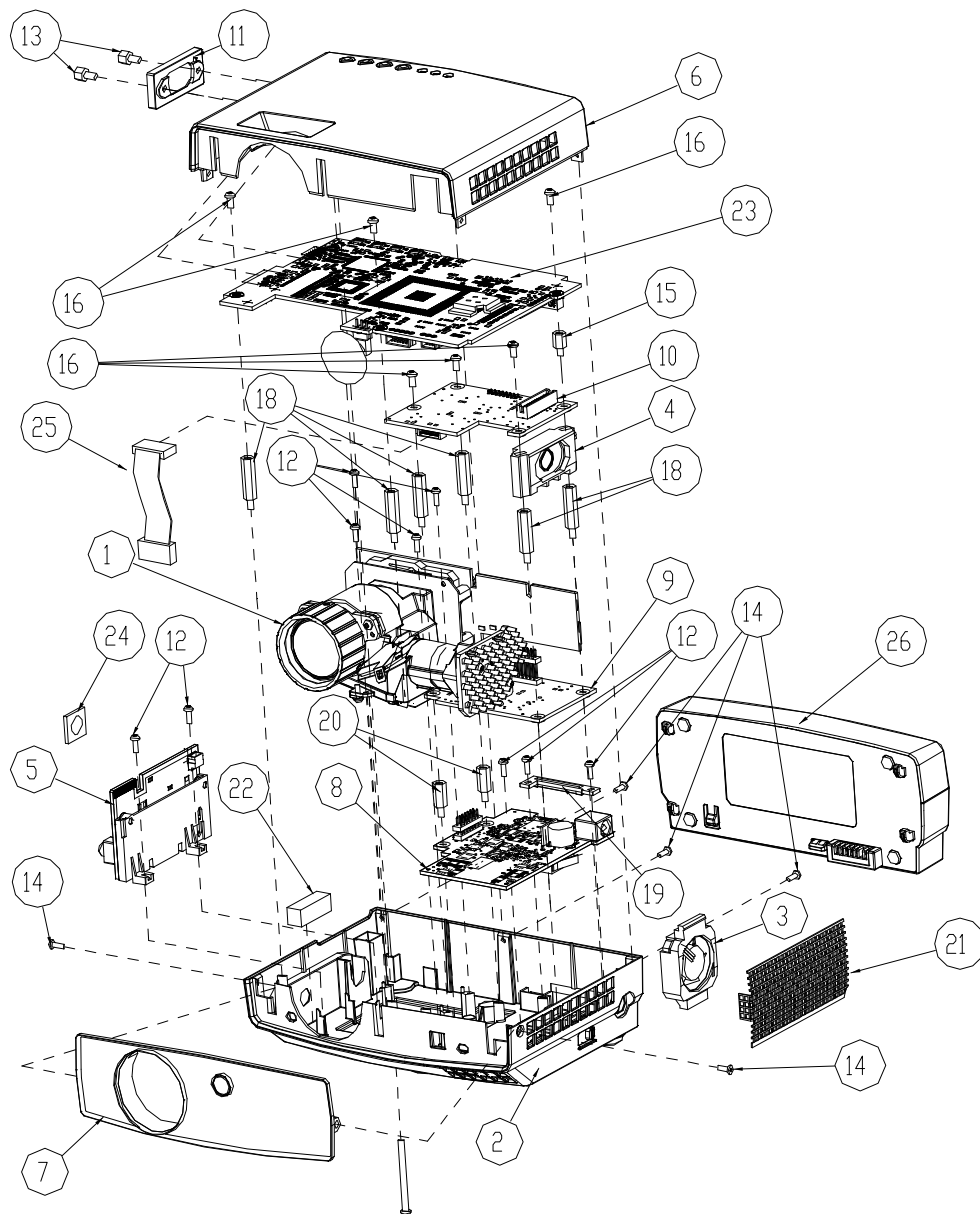
Exploded Parts List

Item	PART_NO	Description
1	70.83Y01G001	ASSY ENGINE MODULE,FF1
2	70.83Y02G001	ASSY BOTTOM CASE MODULE,FF1
3	70.83Y03G001	ASSY FAN MODULE,FF1
4	70.83Y04G001	ASSY SPEAKER MODULE,FF1
5	70.83Y05G001	ASSY I/O PCBA MODULE,FF1
6	70.83Y06G001	ASSY TOP CASE,FF1
7	70.83Y07G001	ASSY FRONT COVER,FF1
8	80.83Y04G001	PCBA BAT BD LED PROJECTOR
9	80.83Y05G001	PCBA POWER BD LED PROJECTOR
10	80.83Y06G001	PCBA LED BD LED PROJECTOR
11	51.83Y07G001	VGA COVER,PC+ABS C6200,FF1
12	85.1A522G060	SCREW PAN MECH M2*6 Ni NYLOK
13	85.005AGG040	SCREW I/O STEEL #4-40UNC*H4*L5.5 NYLOK
14	85.0A122G060	SCREW FLAT MECH M2*6 Ni
15	85.00026G063	HEX SCREW M2.6*H6.3*L5, AL
16	85.1A526G050	SCREW PAN MECH M2.6*5 Ni NYLON
17	85.1A126G340	SCREW PAN MECH M2.6*34 Ni
18	85.00026G185	HEX SCREW M2.6*H18.5*L5, AL
19	51.83Y06G001	BATTERY CONNECTOR COVER,PC+ABS C6200,FF1
20	85.00026G105	HEX SCREW M2.6*H18.5*L5, AL
21	61.83Y13G001	83Y-MESH,SPCC t=0.5mm,FF1
22	41.83Y01G001	GASKET FOR I/O PCBA 13x13x25 mm,FF1
23	70.83Y09G001	ASSY MAIN BD ,FF1
24	41.82B17G001	EMI VIDEO GASKET
25	42.83Y01G001	WIRE 10P PITCH1.0mm #28 50mm OSTAR TO LED/B ,FF1
26	75.83Y03G001	ASSY BATTERY PACK ,FF1

II. ENGINE MODULE
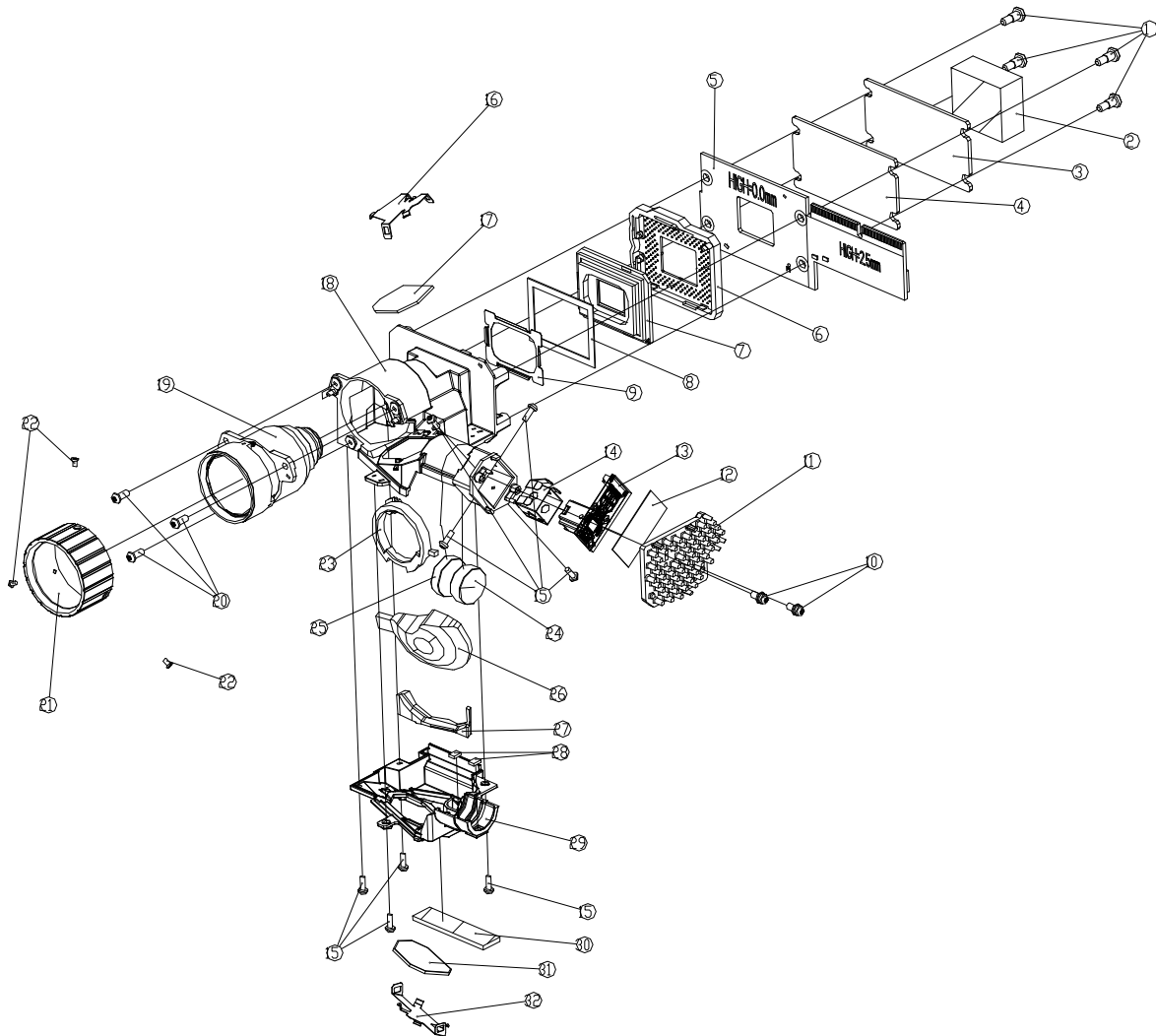
Exploded Parts List

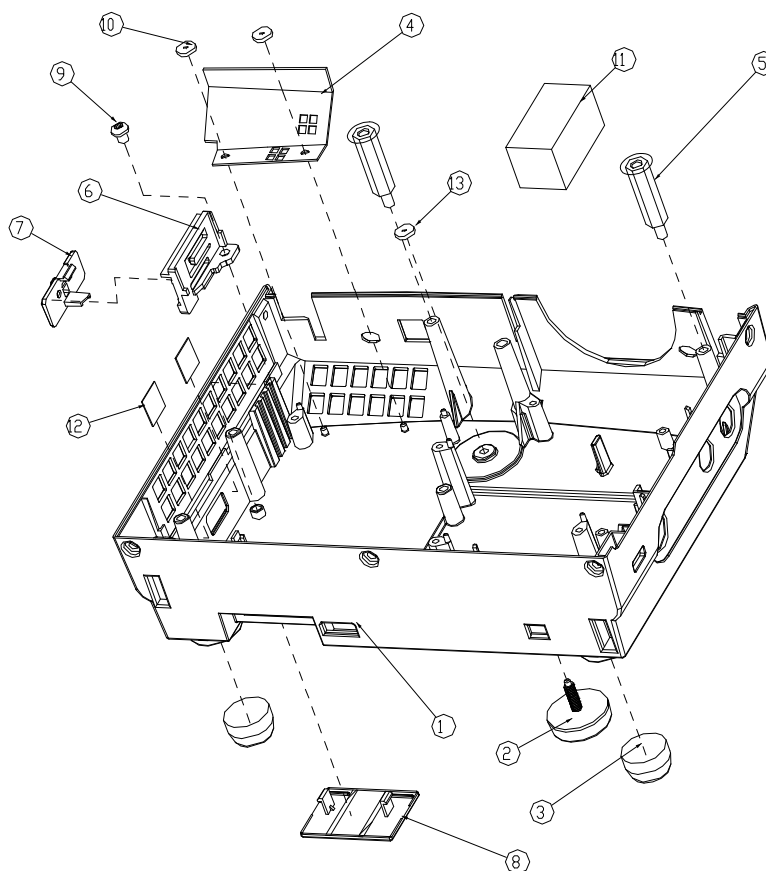| Item	PART_NO	Description
1	61.83Y10G001	DMD SHOUDER SCREW M3x9L
2	41.83Y03G001	GASKET FOR DMD PLATE 25x13x25
3	61.83Y03G001	DMD PLATE,SECC 1.6t
4	52.83Y03G001	RUBBER DMD NEW,RUBBER SHORE A:55
5	80.83Y02G001	PCBA DMD BD LED PROJECTOR
6	11.009F0G005	CNNT F 166P FOR 0.55" SVGA LGA DMD SOCKET
7	48.859DMGD13	DMD 800*600 PIXEL DDR FTP 0.55" SVGA
8	52.80J01G001	DMD ANTIDUST RUBBER 739 SILICONE RUBBER
9	61.88022G001	DMD MASK,SUS 301,T=0.15
10	85.1F126G060	SCREW PAN MECH W/SF M2.6*6 NI
11	61.83Y05G001	OSTAR HEATSINK,AL
12	52.83Y10G001	LED THERMAL PAD 29.5*15*0.3t Fujipoly GR-Hm
13	70.83Y08G001	ASSY OSTAR MODULE
14	61.83Y06G002	SPRING ROD HOLDERWITH 3 SPOTS,SUS 301 t0.3
15	85.1A522G060	SCREW PAN MECH M2*6 NI NYLON
16	61.83Y04G001	SPRING M2 MIRROR,SUS301 0.3t
17	23.83Y02G002	POLYGON MIRROR2(t1.1mm)
18	61.83Y01G001	ENGINE BASE,MG ALLOY
19	23.83Y01G001	YM12 SVGA FIX LENS
20	85.1A526G060	SCREW PAN MECH M2.6*6 Ni NYLOK
21	51.83Y11G001	FOCUS RING,PC+ABS C6200
22	85.YA121G032	SCREW DOUBLE FLAT HEAD TAP M1.7x3L,NI
23	52.83Y01G001	RUBBER RELAY TOP,RUBBER SHORE A:55
24	23.83Y20G001	CONDENSER L3 %%16616mm BK7 SPHERE "YO"
25	23.82Y20G001	CONDENSER LENS 2 DP715
26	23.82Y16G001	RELAY LENS 1 DP715
27	52.83Y02G001	RELAY RUBBER BOTTOM,RUBBER SHORE A:55
28	52.85808G001	PORON-LENS BLACK XB31 "GREEN"
29	61.83Y02G001	ENGINE BOTTOM COVER,MG ALLOY
30	41.83Y02G001	GASKET FOR ENGINE 10x2x40 mm
31	23.83Y02G001	POLYGON MIRROR1 (t1.1mm)
32	61.83Y09G001	M1 SPRING ,SUS301 t0.3

FF1

III. BOTTOM CASE MODULE

Exploded Parts List

Item	PART_NO	Description
1	61.83Y11G001	BOTTOM CASE,MG ALLOY,FF1
2	52.83Y04G001	ELEVATOR FOOT,RUBBER,SHORE A:80,FF1
3	52.83Y06G001	FIX FOOT ,RUBBER,SHORE A:80,FF1
4	61.83Y14G001	83Y-MESH-BOTTOM,SPCC t=0.5mm,FF1
5	85.00026G185	HEX SCREW M2.6*H18.5*L5, AL
6	51.83Y09G001	MICRO SWITCH FRAME,PC+ABS C6200,FF1
7	51.83Y08G001	MICRO SWITCH,PC+ABS C6200,FF1
8	51.83Y12G001	BATTERY CONNECTOR PROTECT COVER,PC+ABS C6200,FF1
9	85.1A126G030	SCREW PAN MECH M2.6*3 Ni
10	61.00022G001	SELF-LOCKING RING (SPN %%c1.5)
11	41.83Y01G001	HEX SCREW M2.6*H6.3*L5, AL
12	51.83Y17G001	TEFLON SWITCH 8*8mm 0.25t,FF1
13	86.00122G015	NUT HEX M2.0*0.4P L15 Ni

IV. TOP CASE MODULE
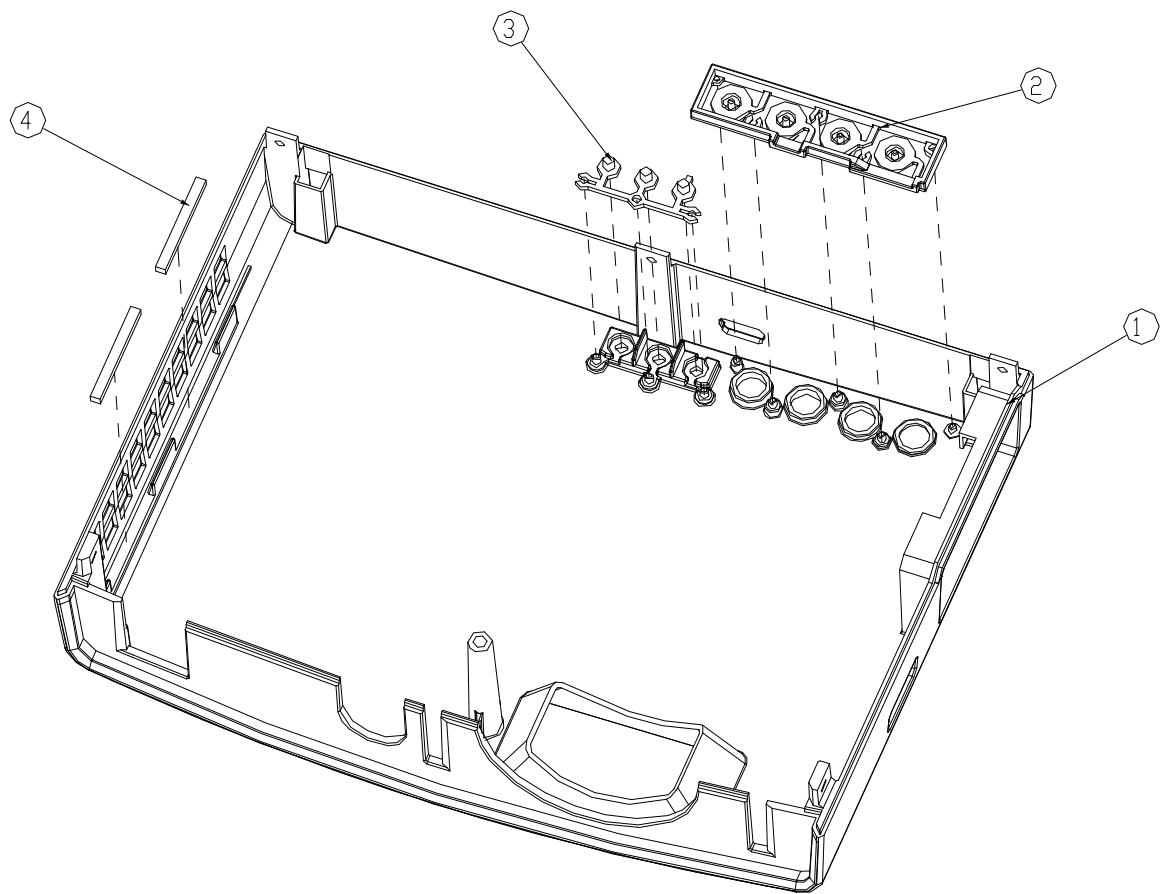
Exploded Parts List

Item	PART_NO	Description
1	61.83Y12G001	TOP CASE,MG ALLOY,FF1
2	51.83Y01G001	KEY PAD,PC+ABS C6200,FF1
3	51.83Y02G001	LED LENS,PC,FF1
4	52.83Y09G001	SPONGE FOR MESH,CR,FF1

FF1

V. MAIN BOARD MODULE
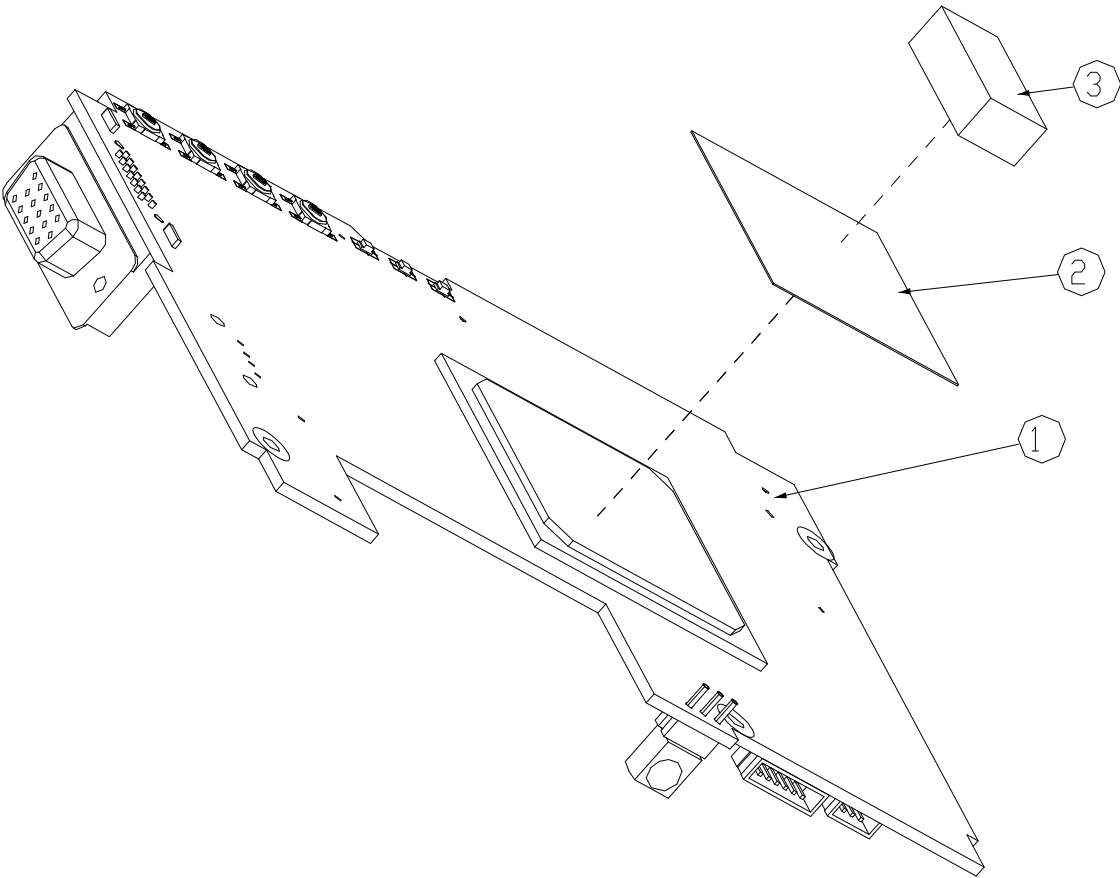
Exploded Parts List

Item	PART_NO	Description
1	80.83Y01G001	PCBA MAIN BD LED PROJECTOR
2	41.83M09G001	EMI TAPE W33*L33mm
3	41.82K38G001	EMI GASKET W10*H6.5*L20mm

VI. OSTAR MODULE
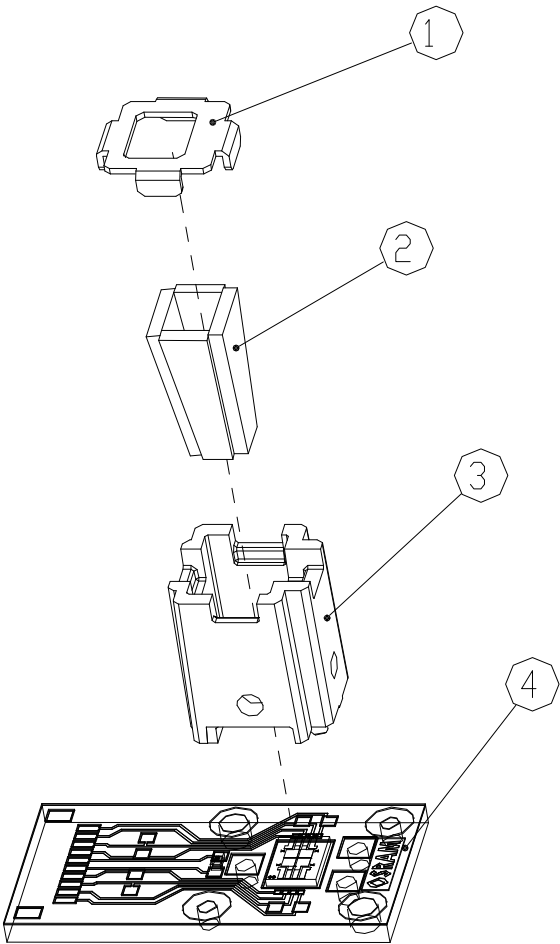
Exploded Parts List

Item	PART_NO	Description
1	61.83Y07G001	OSTAR HOLDER PLATE
2	23.83Y17G002	TAPER ROD SIDE SHIFT
3	61.83Y08G001	OSTAR HOLDER
4	23.83Y15G001	OSTAR LED LIGHT MODULE

FF1

VII. I/O BOARD MODULE
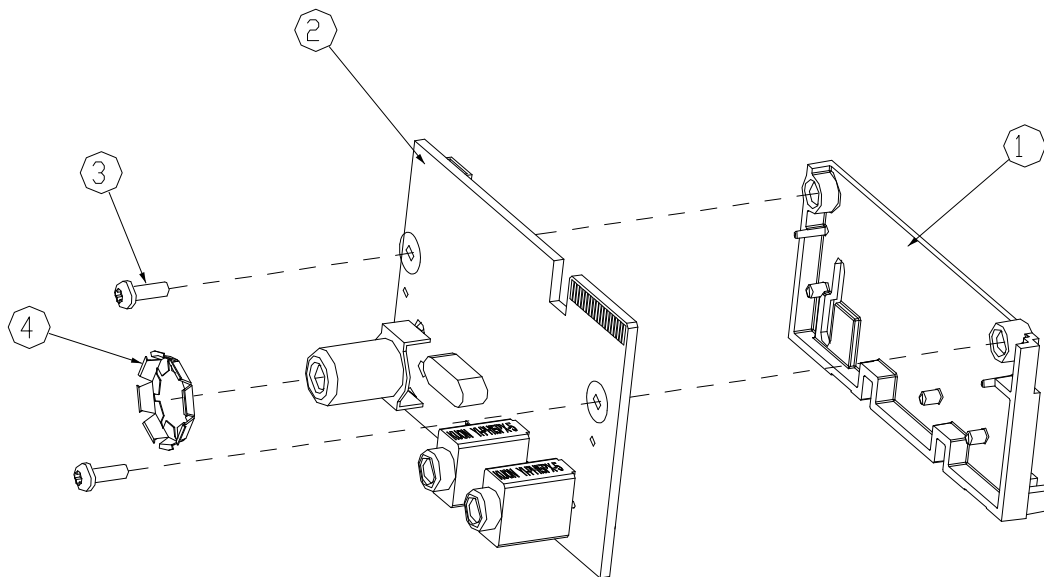
Exploded Parts List

Item	PART NO	Description
1	51.83Y10G001	IO PCB HOLDER,PC+ABS C6200,FF1
2	80.83Y03G001	PCBA I/O BD LED PROJECTOR
3	85.1A522G060	SCREW PAN MECH M2*6 Ni NYLON
4	61.00032G001	RCA JACK SPRING 1072-84-R-N

VIII. FRONT COVER MODULE
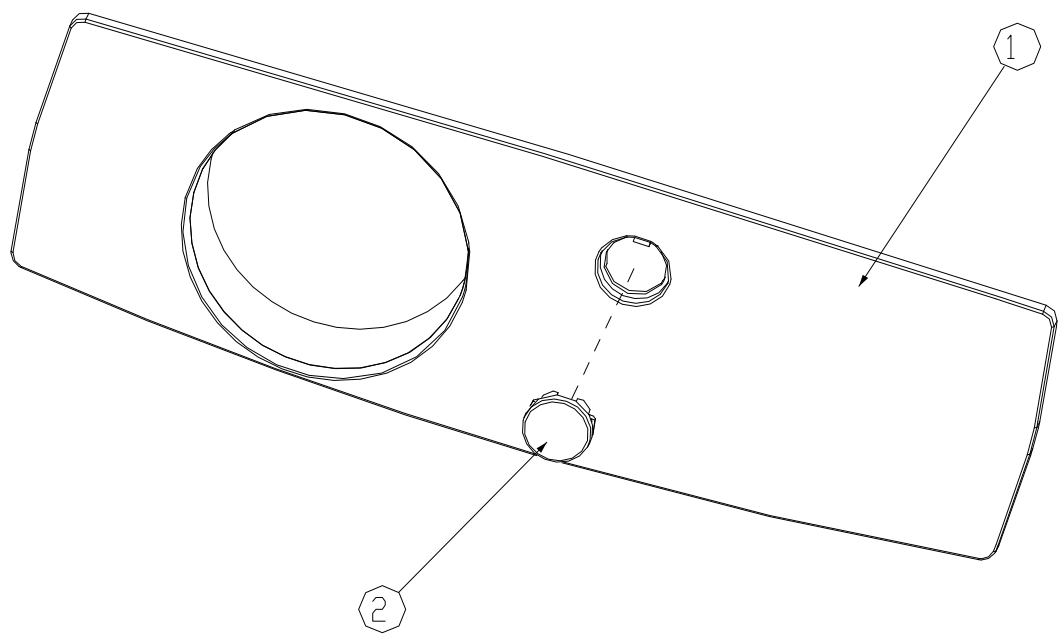
Exploded Parts List

Item	PART NO	Description
1	51.83Y04G001	FRONT COVER,PC+ABS C6200,FF1
2	51.83Y05G001	FRONT IR LENS,IR PC,FF1

IX. FAN Module
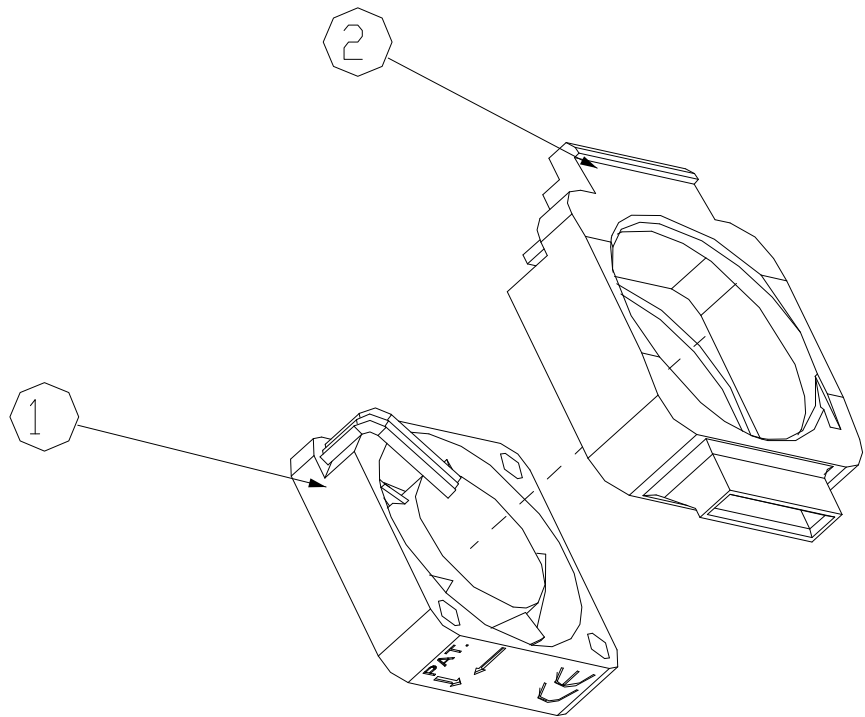
Exploded Parts List

Item	PART NO	Description
1	49.83Y01G001	SUNON FAN GM0502PEV3-8.A.R.GN/25X25X6 MM
2	52.83Y08G001	SYSTEM FAN HOLDER,RUBBER,SHORE A:50,FF1

X. SPEAKER MODULE
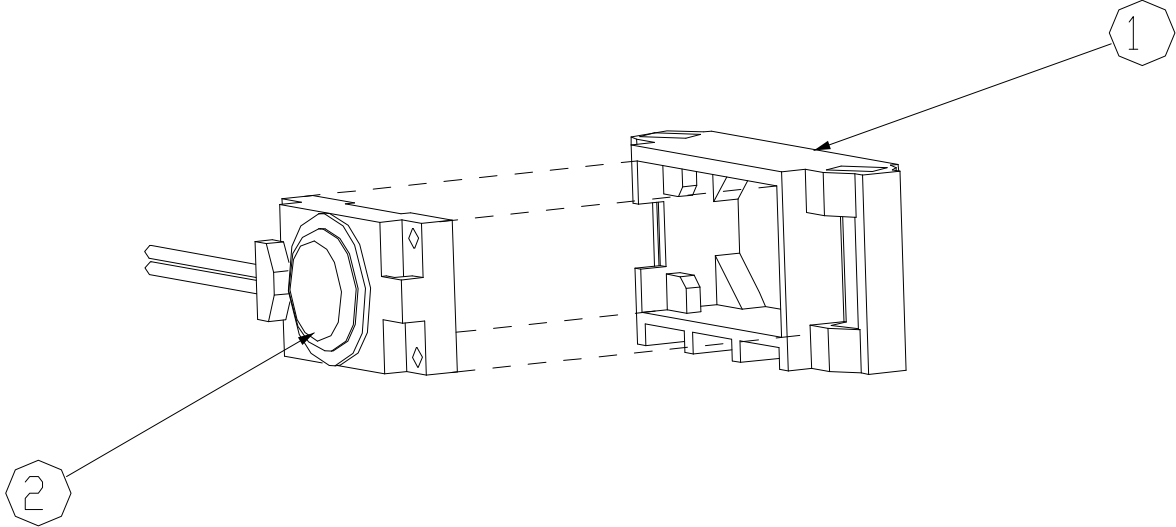
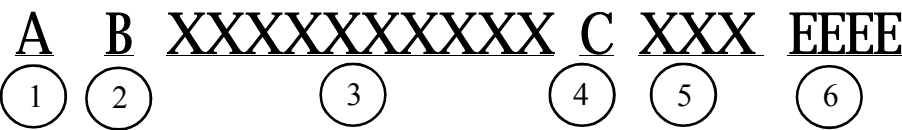## Exploded Parts List

Item	PART_NO	Description
1	52.83Y07G001	SPEAKER HOLDER,RUBBER,SHORE A:50,FF1
2	49.83Y02G001	SPEAKER 25*14mm 1.5W 4ohm 080CNC0252912 "MEI SHAN"

FF1

Appendix B

I. PCBA Code Definition

PCBA Code for Projector

$$\underset{\underset{1}{\bigcirc}}{\underline{A}} \quad \underset{\underset{2}{\bigcirc}}{\underline{B}} \quad \underset{\underset{3}{\bigcirc}}{\underline{XXXXXXXXXX}} \quad \underset{\underset{4}{\bigcirc}}{\underline{C}} \quad \underset{\underset{5}{\bigcirc}}{\underline{XXX}} \quad \underset{\underset{6}{\bigcirc}}{\underline{EEEE}}$$

1	:	ID	C: M/B
			B: DMD/ B
2	:	Vendor Code	
3	:	P/N	
4	:	Revision	
5	:	Date Code	
6	:	S/N	